

09/301,971

Title: Method for operating a chemical and/or physical process by means of a hierarchical fluid injection system

Abstract OF THE Disclosure

The invention relates to injection of fluids (gas, liquid, suspension or other mixtures) in a controlled typically uniform way within a vessel containing another fluid or fluidized medium. Said injection device consists of pipes or channels that are connected in a hierarchical fashion so that the fluid entering a first channel is divided into channels of the same or different diameter and length, each or some of which are further divided into channels of the same or different diameter and length, and so on. The injection system can also consist of combinations of such tree-like or fractal-like elements, embedded in the plane or in space.

The embodiment depends upon the nature of the fluids and the application. The invention can be used for gas/solid fluidized bed and a gas/liquid and other processes. A typical application is the reduction and uniformization or otherwise control of bubble sizes to optimize the operation of fluidized bed, slurry and gas/liquid reactors.

09301971-042999